

WHAT IS CLAIMED IS:

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1. A noise canceling method comprising the steps of:

- receiving a specific signal having a .
specified time position, amplitude and phase;
10 recognizing a noise distribution of the specific signal;
predicting a noise by extracting a frequency band having a larger noise component from a pair of frequencies generated by insertion of the
15 specific signal; and
reproducing a transmitted original signal by canceling the predicted noise from a reception signal.

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2. The noise canceling method as claimed in claim 1, wherein said specific signal is a zero
25 point signal having an amplitude of zero, and the zero point signal is periodically inserted into the transmitted original signal.

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3. A noise canceling method comprising the steps of:

- receiving a reception signal containing a
35 specific signal and a no-transmission energy section during which no periodical transmission is made, the specific signal having a specified time position,

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reception signal during the no-transmission energy section;

notifying a transmission side of the investigated noise distribution;

5 changing, by the transmission side, an order of channels based on the noise distribution notified by the reception side so that channels having a large noise are gathered in a specific band;

10 sending a signal subjected to the channel change to the reception side;

restoring, by the reception side, the order of channels, which has been changed by the transmission side, to an original order;

15 extracting a noise component of a specific band from the specific signal of the reception signal having channels in the restored order;

interpolation-predicting a noise of a data signal point; and

20 canceling a noise of the specific band by removing the interpolation-predicted noise from the reception signal.

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6. The noise canceling method as claimed in claim 5, wherein said specific signal is a zero point signal having an amplitude of zero, and the
30 zero point signal is periodically inserted into the transmitted original signal.

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7. A noise canceling apparatus comprising:

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means for receiving a specific signal having a specified time position, amplitude and phase;

5 means for recognizing a noise distribution of the specific signal;

means for predicting a noise by extracting a frequency band having a larger noise component from a pair of frequencies generated by insertion of the specific signal; and

10 means for reproducing a transmitted original signal by canceling the predicted noise from a reception signal.

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8. The noise canceling apparatus as claimed in claim 7, wherein said specific signal is a zero point signal having an amplitude of zero, and the zero point signal is periodically inserted into the transmitted original signal.

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9. A noise canceling apparatus comprising:

30 mans for receiving a reception signal containing a specific signal and a no-transmission energy section during which no periodical transmission is made, the specific signal having a specified time position, amplitude and phase;

35 means for extracting a noise component from the specific signal of the reception signal, interpolation-predicting a noise of a data signal point, and canceling a noise of a specific band by removing the predicted noise from the reception

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signal; and

means for recognizing a noise distribution of the no-transmission energy section of the reception signal, predicting a noise by extracting a frequency band having a larger noise component from a pair of frequencies generated by insertion of the specific signal, and canceling a large level noise by removing the predicted noise from the reception signal.

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10. The noise canceling apparatus as claimed in claim 9, wherein said specific signal is a zero point signal having an amplitude of zero, and the zero point signal is periodically inserted into the transmitted original signal.

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11. The noise canceling apparatus as claimed in claim 9, wherein said means for recognizing a noise distribution comprises means for transforming the reception signal during the no-transmission energy section by a fast Fourier transformation method.

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12. A noise canceling apparatus comprising:

means, provided on a reception side, for receiving a reception signal containing a specific signal and a no-transmission energy section during

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which no periodical transmission is made, the specific signal having a specified time position, amplitude and phase;

means, provided on the reception side, for
5 investigating a noise distribution of the reception signal during the no-transmission energy section;

means, provided on the reception side, for notifying a transmission side of the investigated noise distribution;

10 means, provided on a transmission side, for changing, by the transmission side, an order of channels based on the noise distribution notified by the reception side so that channels having a large noise are gathered in a specific band;

15 means, provided on the transmission side, for sending a signal subjected to the channel change to the reception side;

means, provided on the reception side, for restoring the order of channels, which has been
20 changed by the transmission side, to an original order;

means, provided on the reception side, for extracting a noise component of a specific band from the specific signal of the reception signal having
25 channels in the restored order;

means, provided on the reception side, for interpolation-predicting a nose of a data signal point; and

means, provided on the reception side, for
30 canceling a noise of the specific band by removing the interpolation-predicted noise from the reception signal.

13. The noise canceling apparatus as
claimed in claim 12, wherein said specific signal is
a zero point signal having an amplitude of zero, and
the zero point signal is periodically inserted into
5 the transmitted original signal.

10 14. The noise canceling apparatus as
claimed in claim 12, wherein said means for
investigating a noise distribution comprises a low-
pass filter and means for demodulating the reception
signal during the no-transmission energy section on
15 an individual frequency band basis.

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